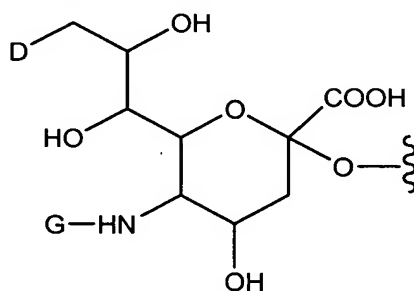


WHAT IS CLAIMED IS:

- 1 1. A follicle stimulating hormone peptide comprising the moiety:



2

3

wherein

4

D is a member selected from -OH and R^1 -L-HN-;

5

G is a member selected from R^1 -L- and $-C(O)(C_1-C_6)alkyl$;

6

R^1 is a moiety comprising a member selected a moiety comprising a straight-chain or branched poly(ethylene glycol) residue; and

7

8

L is a linker which is a member selected from a bond, substituted or

9

unsubstituted alkyl and substituted or unsubstituted heteroalkyl,

10

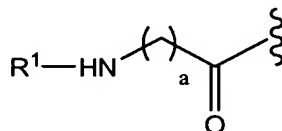
such that when D is OH, G is R^1 -L-, and when G is $-C(O)(C_1-C_6)alkyl$, D is

11

R^1 -L-NH-.

1

2. The peptide according to claim 1, wherein L- R^1 has the formula:



2

3

wherein

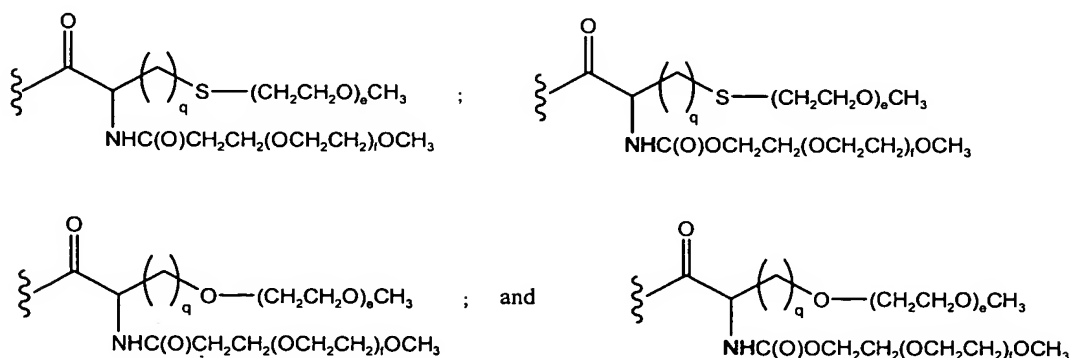
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a is an integer from 0 to 20.

1

3. The peptide according to claim 1, wherein R^1 has a structure that is a member selected from:

2

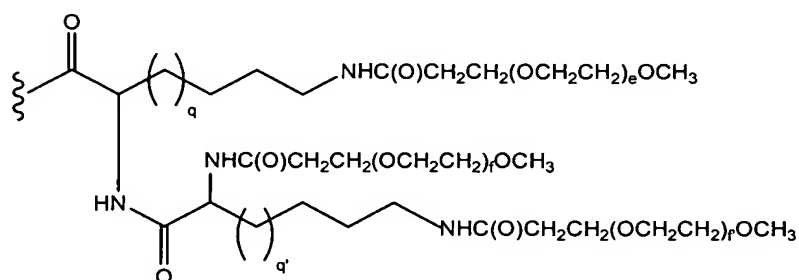
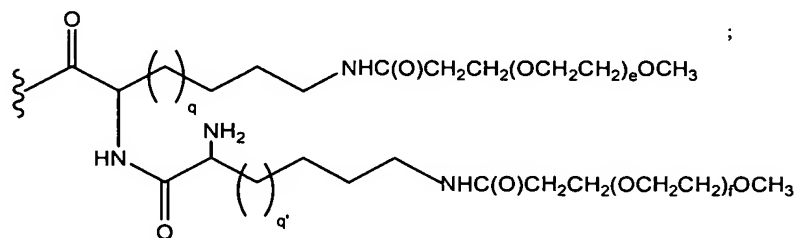
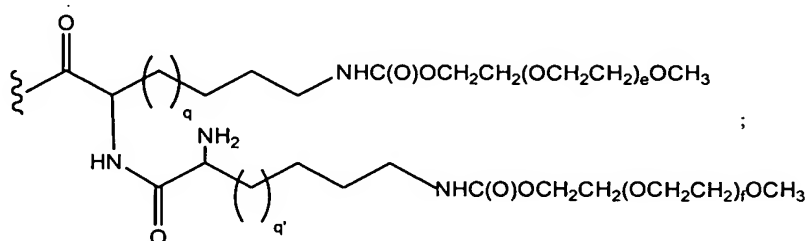


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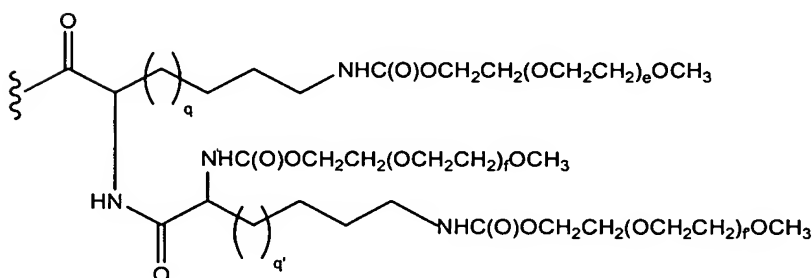
4

wherein

- 5 e and f are integers independently selected from 1 to 2500; and
 6 q is an integer from 0 to 20.
 1 4. The peptide according to claim 1, wherein R¹ has a structure that is a member
 2 selected from:

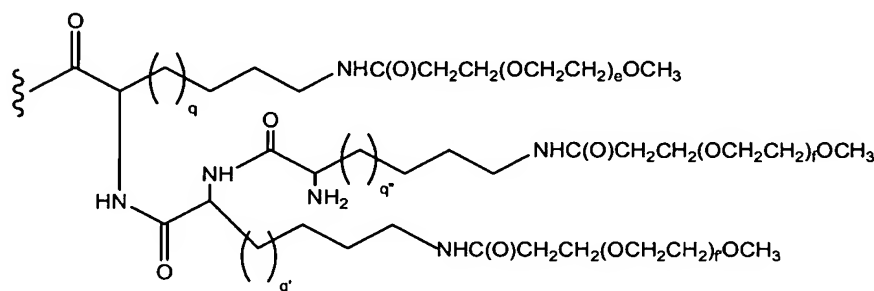
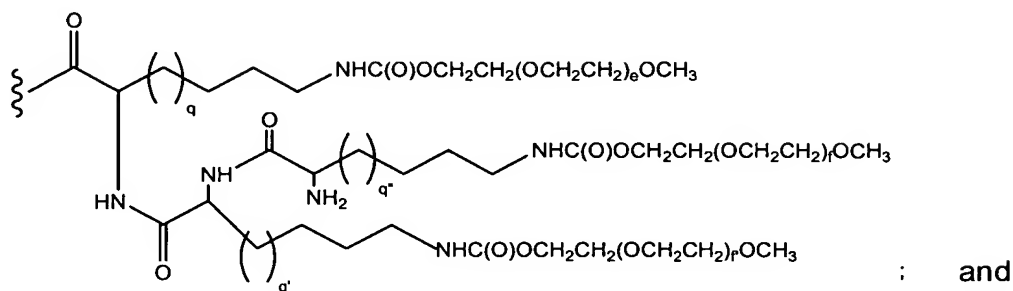


and



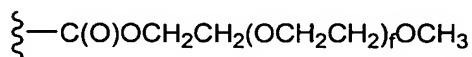
- 3
 4 wherein
 5 e, f and f' are integers independently selected from 1 to 2500; and
 6 q and q' are integers independently selected from 1 to 20.

- 1 5. The peptide according to claim 1, wherein R¹ has a structure that is a member
2 selected from:



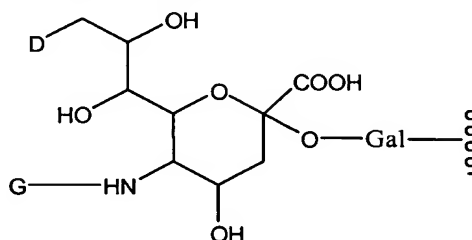
- 3
4 wherein
5 e, f and f' are integers independently selected from 1 to 2500; and
6 q, q' and q'' are integers independently selected from 1 to 20.

- 1 6. The peptide according to claim 1, wherein R¹ has a structure that is a member
2 selected from:



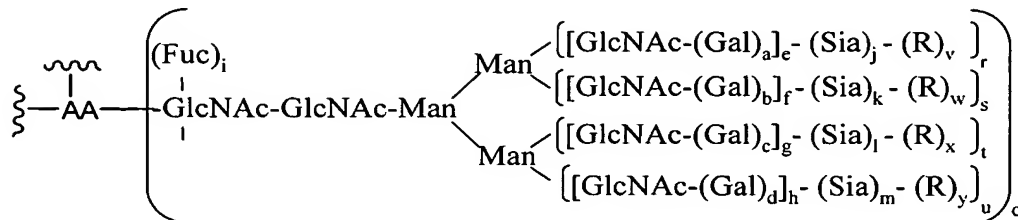
- 3
4 wherein
5 e and f are integers independently selected from 1 to 2500.

- 1 7. The FSH peptide according to claim 1, wherein said moiety has the formula:



- 1 8. The peptide according to claim 1, wherein said peptide has an amino acid
2 sequence selected from SEQ. ID. NO:1 and SEQ ID NO:2.

1 9. The FSH peptide according to claim 1, wherein said moiety has the formula:



2

3 wherein

4 a, b, c, d, i, r, s, t, and u are integers independently selected from 0 and 1;

5 q is 1;

6 e, f, g, and h are members independently selected from the integers from 0 to

7 6;

8 j, k, l, and m are members independently selected from the integers from 0 and

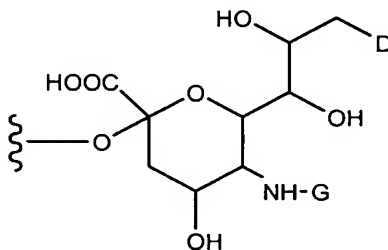
9 100;

10 v, w, x, and y are independently selected from 0 and 1, and least one of v, w, x

11 and y is 1;

12 AA is an amino acid residue of said FSH peptide;

13 Sia-(R) has the formula:



14

15 wherein

16 D is a member selected from -OH and $\text{R}^1\text{-L-HN-}$;

17 G is a member selected from $\text{R}^1\text{-L-}$ and $\text{-C(O)(C}_1\text{-C}_6\text{)alkyl}$;

18 R^1 is a moiety comprising a member selected a straight-chain or

19 branched poly(ethylene glycol) residue; and

20 L is a linker which is a member selected from a bond, substituted or

21 unsubstituted alkyl and substituted or unsubstituted heteroalkyl,

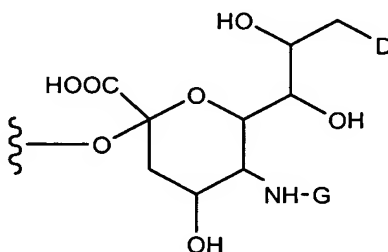
22 such that when D is OH, G is R¹-L-, and when G is -C(O)(C₁-C₆)alkyl,
23 D is R¹-L-NH-.

1 10. The peptide according to claim 9, wherein said amino acid residue is an
2 asparagine residue.

1 11. The peptide according to claim 10, wherein said amino acid residue is an
2 asparagine residue which is a member selected from N7 of SEQ ID NO:2, N24 of
3 SEQ ID NO:2, N52 of SEQ ID NO:1, and N78 of SEQ ID NO:1, and combinations
4 thereof.

1 12. The peptide according to claim 1, wherein said peptide is a bioactive follicle
2 stimulating hormone peptide.

1 13. A method of making a FSH peptide conjugate comprising the moiety:



2
3 wherein

4 D is a member selected from -OH and R¹-L-HN-;

5 G is a member selected from R¹-L- and -C(O)(C₁-C₆)alkyl;

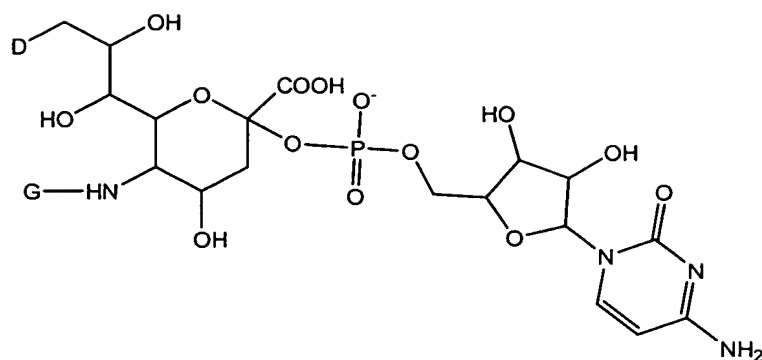
6 R¹ is a moiety comprising a member selected a straight-chain or branched
7 poly(ethylene glycol) residue; and

8 L is a linker which is a member selected from a bond, substituted or
9 unsubstituted alkyl and substituted or unsubstituted heteroalkyl,

10 such that when D is OH, G is R¹-L-, and when G is -C(O)(C₁-C₆)alkyl, D is
11 R¹-L-NH-,

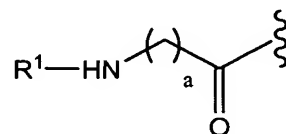
12 said method comprising:

13 (a) contacting a substrate FSH peptide with a PEG-sialic acid donor moiety
14 having the formula:



and an enzyme that transfers said PEG-sialic acid onto an amino acid or glycosyl residue of said FSH peptide, under conditions appropriate for the transfer.

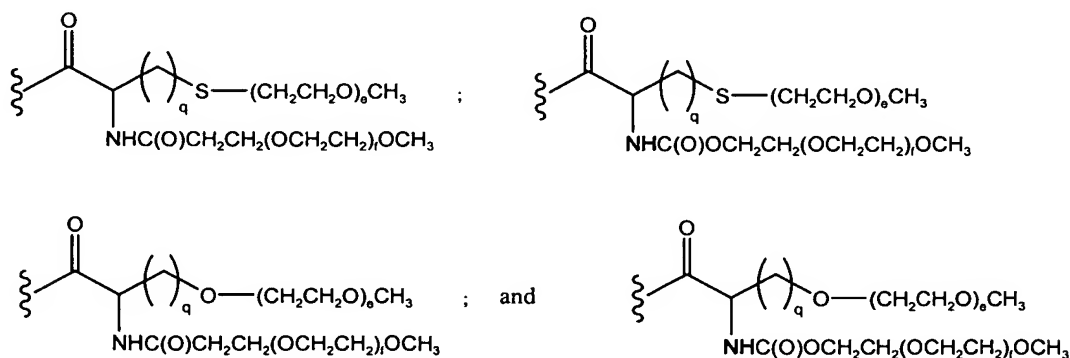
14. The method according to claim 13, wherein $L-R^1$ has the formula:



wherein

a is an integer from 0 to 20.

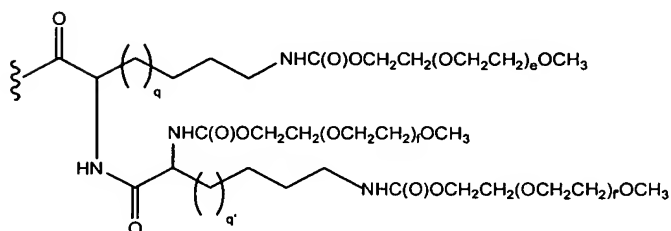
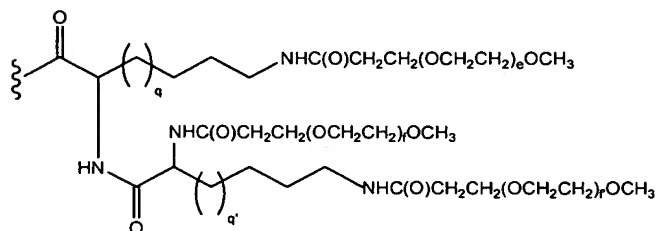
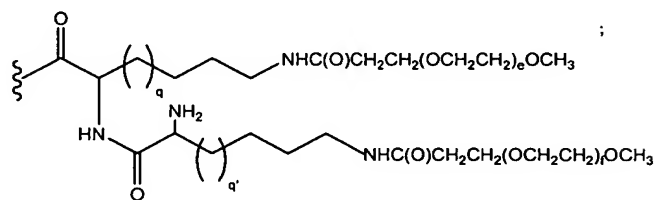
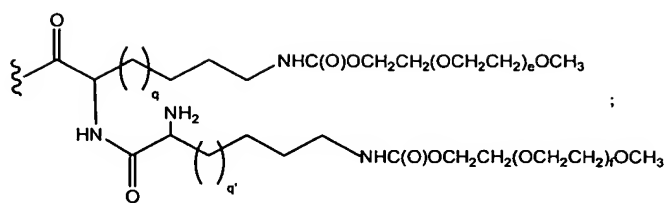
15. The method according to claim 13, wherein R^1 has a structure that is a member selected from:



wherein

e and f are integers independently selected from 1 to 2500; and
 q is an integer from 0 to 20.

16. The method according to claim 13, wherein R^1 has a structure that is a member selected from:



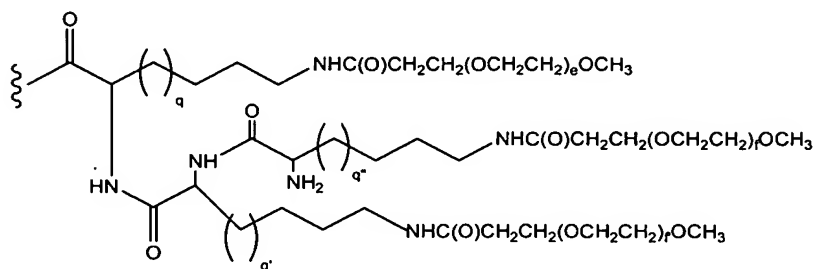
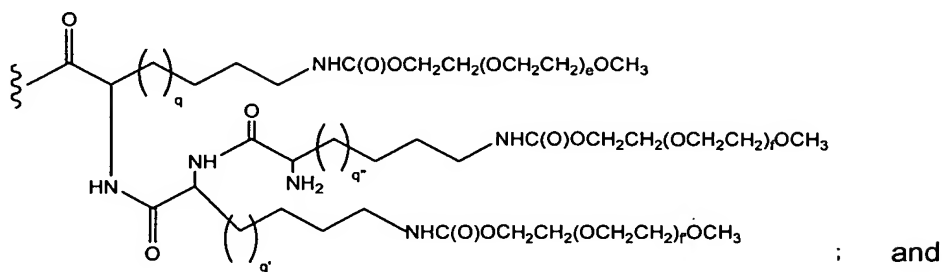
3

4 wherein

5 e, f and f' are integers independently selected from 1 to 2500; and

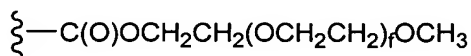
6 q and q' are integers independently selected from 1 to 20.

1 17. The method according to claim 13, wherein R¹ has a structure that is a
2 member selected from:



3
4 wherein
5 e, f and f' are integers independently selected from 1 to 2500; and
6 q, q' and q'' are integers independently selected from 1 to 20.

1 18. The method according to claim 13, wherein R¹ has a structure that is a
2 member selected from:



3
4 wherein
5 e and f are integers independently selected from 1 to 2500.

1 19. The method of claim 13, further comprising, prior to step (a):
2 (b) expressing said substrate follicle stimulating hormone peptide in a
3 suitable host.

1 20. The method of claim 13, wherein said host is selected from an insect cell and a
2 mammalian cell.

1 21. A method of stimulating ovarian follicles in a mammal, said method
2 comprising administering to said mammal a peptide according to claim 1.

1 **22.** A method of treating a condition in a subject in need thereof, said condition
2 characterized by reproductive infertility said method comprising the step of
3 administering to the subject an amount of a peptide according to claim 1, effective to
4 ameliorate said condition in said subject.

1 **23.** A pharmaceutical formulation comprising the follicle stimulating hormone
2 peptide according to claim 1, and a pharmaceutically acceptable carrier.